

WASHINGTON STATE DEPARTMENT OF ECOLOGY

STATEMENT OF BASIS FOR NPDES PERMIT NO. WA0040029 ALLWEATHER WOOD TREATERS

GENERAL INFORMATION	
Facility Name and Address:	Allweather Wood Treaters 725 South 32 nd Street Washougal, WA 98671
Type of Facility:	Pressure Wood Preserving
Discharge Location:	Water body name: Columbia River via Gibbons Creek Outfall 001: Latitude: 45° 34' 16" N Longitude: 122° 20' 07" W
Water Body ID Number:	WA-CR-1010
NPDES Permit No. WA-0040029	Issuance Date: March 1, 2003 Effective Date: March 1, 2003 Expiration Date: March 1, 2008

Permit Modification Request

On May 10, 2004, the Department of Ecology (the Department) received a permit modification request (the PMR).

1. The PMR is for a copper limit modification for Outfall 001 for a limited time.
2. Allweather is unable to comply with the current copper limit due to a voluntary decision by the wood preserving industry to move away from consumer use of chromated copper arsenate (CCA) treated lumber [residential lumber] to new alternative wood preservatives by December 31, 2003. The new alternative wood preservative used by Allweather has a higher level of copper that results in a higher copper concentration in stormwater influent to the Electrocoagulation Treatment System (ECTS). The ECTS removes an average of 93% of copper according to the PMR. However, this removal efficiency is not sufficient to comply with the current copper limit.
3. Allweather began modifications to the ECTS last fall and submitted an action plan for the ECTS compliance during a February 12, 2004 inspection, Table 1. These modifications have not accomplished the desired improvement in water quality for copper; however, according



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to the PMR, the levels of arsenic, chromium, and hexavalent chromium have continued to drop and are well below the permit limits for Outfall 001 since beginning of the 2004.

4. According to the PMR, all action items except item 6, bench testing, have been completed, Table 1. Completion of the action items have been slower than anticipated, due to the abnormally dry spring of 2004. The bench testing of chemical additives to enhance settlement will proceed when the results of the other modifications are evaluated. Bench testing will be followed by full scale testing if the results of the bench tests are favorable. The full scale testing is planned for the 2004-05 wet season, Table 2: Second Set of Action Items, May 18, 2004.
5. The current copper limit is 36 micrograms per liter ($\mu\text{g/L}$). The requested interim copper limit would be 160 $\mu\text{g/L}$, lower than the previous interim copper limit of 280 $\mu\text{g/L}$, which was enforced until September 1, 2003. The requested interim copper limit would be enforced until October 2005. According to the PMR, the duration of the requested interim copper limit would allow sufficient time to develop and implement additional modifications of or expansions to the existing treatment system.

Table 1: First Set of Action Items, February 12, 2004

Action Plan for the ESTS		
Item	Description	Status
1.	Oil Trap to study pH adjustment to enhance copper removal	Completed 2/9/04 Results identified optimum influent pH as 7.5 to 8.0
2.	Remove sludge from post-EC ¹ settling tanks on regular basis by adding sludge handling equipment	Completed 12/03
3.	Move outlet from storage tank 2 to top of storage tank 3 and clean all three storage tanks to remove accumulated sediment	AWT will proceed with modifications as soon as weather allows
4.	Increase the number of post-EC settling tanks by adding two 6000 gal. Poly tanks and piping them to existing tanks	AWT is proceeding with purchase and installation of additional tanks
5.	Monitor pH of influent and effluent daily during EC cell operation to provide data on how pH is changing with the change of wood treating chemicals and to meet optimum pH range. Also that permit	Start with next rain event

¹ [Electrocoagulation]

Action Plan for the ESTS		
Item	Description	Status
	requirements for pH are met.	
6.	Bench test influent to storage tank with chemical additives to enhance sedimentation prior to EC cells	Perform tests with advent of next rain event
7.	Switch to all aluminum ² EC cell electrodes to increase copper removal. Timing is dependent on the reduction in CCA treating chemical use	Switch as soon as Cr+6 in the influent storm water falls below 48 ppb for several consecutive months
<p>PROBLEM: Conversion of treating chemical from CCA to ammoniacal copper quat (ACQ) has resulted in elevated copper in the raw water and the EC treatment unit has been unable to attain the final effluent standard for copper (36 ppb) since they went into affect on September 1, 2003.</p> <p>EVALUATION: Copper in the raw storm water has ranged from 867 to 2030 ppb since September 1, 2003, with an average value of 1522 ppb. The best treated water quality during the period of 9/1/03 and 2/05/03 was 58 ppb of copper, with the average being 101 excluding the reading where the treatment plant was turned off accidentally. The treatment capacity was increased in September 2003 from 65 gpm to 135 gpm.</p>		

Table 2: Second Set of Action Items, May 18, 2004

ACTION ITEM		TIMETABLE FOR COMPLETION
1.	Perform bench test of influent to storage tank with chemical additives to enhance sedimentation prior to EC cells. The influent storage tanks can be partially adapted for use as settling tanks if sedimentation can lower copper levels and allow EC cells to perform better.	Perform bench tests as soon as runoff is sufficient to get a representative sample (Spring 2003)

² Aluminum electrodes remove copper better.



ACTION ITEM		TIMETABLE FOR COMPLETION
2.	Perform additional water quality analyses on copper for the influent (untreated) and effluent (treated) to determine if filtered samples show a marked reduction in concentration over unfiltered. This test will provide input as to whether filtration is effective.	Perform analytical tests as soon as runoff is sufficient to get a representative sample (Spring 2003)
3.	Conduct full scale chemical additive testing <u>if bench testing shows significant improvement</u> in copper removal. Full-scale tests are required to see if this approach is truly effective in the existing system.	Perform full scale tests during Fall-Winter 2004-05
4.	Conduct full scale filtration testing <u>if laboratory testing shows significant improvement</u> in copper removal.	Perform full scale tests during Fall-Winter 2004-05
5.	Conduct bench test with new solid-state electronics EC controller unit that is being developed and introduced by Oil Trap. The prototype unit shows treatment efficiencies increase as a result of higher power input.	Perform bench tests as soon as EC controller is available (Summer-Fall 2004)
6.	Install new solid-state electronics EC controller <u>if bench tests show significant improvement</u> in copper removal. Fall 2004 is the soonest the unit would be available.	Install new controller (Fall-Winter 2004-05)
7.	Run full-scale test of EC units with flow set at a lower level to determine increase in copper removal efficiency.	Summer 2005
8.	Increase EC plant capacity to decrease the load on each individual cell <u>if testing results in attainment of the final copper permit limitation.</u>	Fall 2005

The Department Determination

1. Allweather has been unable to comply with the current copper limit (36 µg/L) since September 2003, Figure 1 and Figure 2. Since March 2003, the ECTS has removed an

average of 88% of copper, or 79% when negative removal efficiency of -4% for October 2003 is used in a calculation of the average removal efficiency, Table 1.

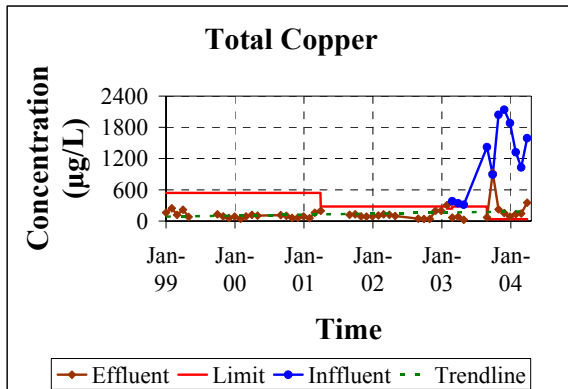


Figure 1 Effluent concentration, Jan. 1999-Apr. 2004; influent concentration, Mar. 2003-Apr. 2004

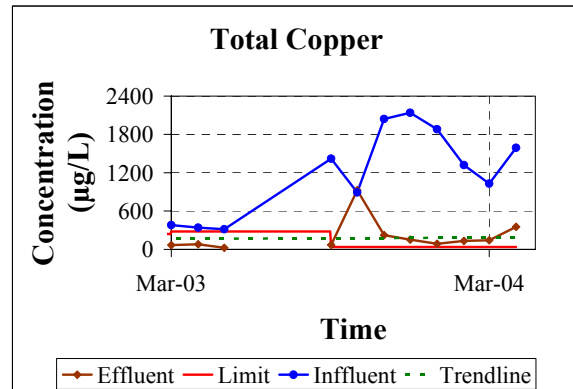


Figure 2 Influent and effluent concentration, Mar. 2003-Apr. 2004

Table 3 Copper removal efficiency

Date	Total Copper (µg/L)			Removal Efficiency
	Influent	Effluent	Limit	
Mar-03	381	66	280	83%
Apr-03	341	80	280	77%
May-03	315	24	280	92%
Aug-03			280	
Sep-03	1,420	70	36	95%
Oct-03	891	928	36	-4%
Nov-03	2,040	224	36	89%
Dec-03	2,140	153	36	93%
Jan-04	1,880	87	36	95%
Feb-04	1,320	132	36	90%
Mar-04	1,030	143	36	86%
Apr-04	1,590	353	36	78%
Averages:	1,213	205		88%
				(with -4%) 79%

- The levels of arsenic, chromium, and hexavalent chromium have continued to drop and are well below the permit limits for Outfall 001 since beginning of the 2004; **Figure 3**, **Figure 4**, and **Figure 5**.

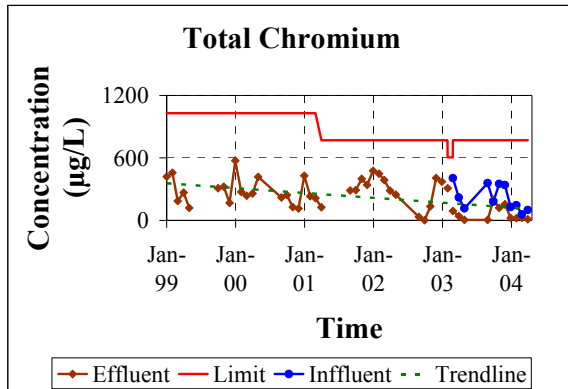


Figure 3 Effluent concentration, Jan. 1999-Apr. 2004; influent concentration, Mar. 2003-Apr. 2004

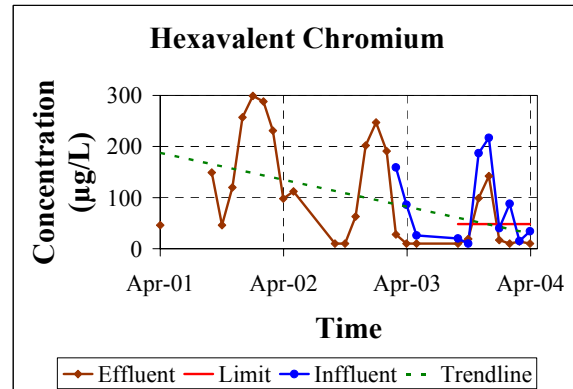


Figure 4 Effluent concentration, Apr. 2001-Apr. 2004; influent concentration, Mar. 2003-Apr. 2004

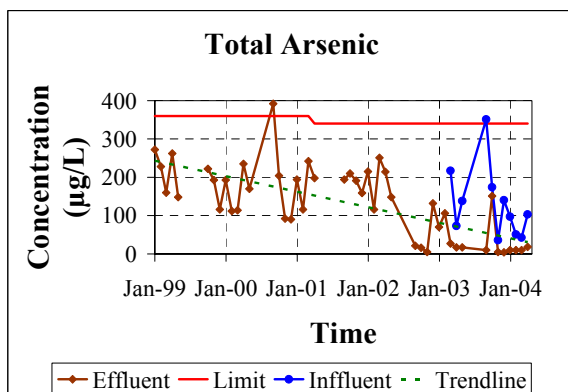


Figure 5 Effluent concentration, Jan. 1999-Apr. 2004; influent concentration, Mar. 2003-Apr. 2004

3. The requested interim copper limit of 160 µg/L is lower than the pervious interim copper limit of 280 µg/L. If the limit was calculated based on performance, for a period with elevated influent copper concentration (September 2003-April 2004) excluding outlier in October 2003, the limit would be 520 µg/L.
4. The Department has tentatively determined, based on the above information and analyses, that the requested interim copper limit would allow additional time to develop and implement further modifications of or expansions to the existing treatment system



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with lower probability for the permit violations. The Department proposes an interim permit limit of 160 µg/L until October 31, 2005.

Public Involvement Information

The Department has tentatively determined to modify the permit to the applicant listed on page 1 of this statement of basis. Only a copper limit for Outfall 001 has been tentatively determined to be modified. The Department determination is described in the statement of basis.

The Department will publish a Public Notice of Draft (PNOD) on _____, in the *Camas-Washougal Post* to inform the public that a draft permit and statement of basis are available for review. Interested persons are invited to submit written comments regarding portions of this draft permit that are modified. The draft permit, statement of basis, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Regional Office – Water Quality
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on or request a public hearing on portions of this draft modification of the permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6280, or by writing to the address listed above.